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ABSTRACT

Four treatment conditions were selected for a study examining the effects of immediate video feedback of oral assignments on group discussants' self-perceived anxiety, participants' satisfaction, and discussion quality. The subjects were 80 students enrolled in basic speech and business/professional speech communication courses. Twenty subjects were assigned to each of the four treatment conditions: (1) immediate feedback during two discussions, (2) immediate feedback during the first discussion but not during the second discussion, (3) immediate feedback during the second but not during the first discussion, and (4) no immediate feedback during either discussion. The results indicated that receivers of immediate performance appraisal were no more anxious either before or during their interactions, were more satisfied with their performances, and participated in discussions of higher quality than did individuals working without immediate feedback. (RL)

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EFFECTS OF IMMEDIATE INSTRUCTOR FEEDBACK ON GROUP DISCUSSION PARTICIPANTS

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EFFECTS OF IMMEDIATE INSTRUCTOR FEEDBACK ON GROUP DISCUSSION PARTICIPANTS

Desire for prompt appraisal of oral assignments is strong among students of speech communication.[1] Ideally, communication feedback occurs immediately after the stimulus that it evaluates. Unfortunately, the provision of immediate feedback to group discussion participants has remained an attractive, but impractical critiquing method due to concern for disrupting the discussion process.

Post performance analyses are limited in their ability to improve discussants' communication skills because students have difficulty recalling their behavior in proper context to correctly interpret and implement instructor suggestions. Further, students are deprived of experiencing "correct" behavior as they grope to satisfy their teachers. Finally, without immediate feedback, inappropriate behaviors can recur throughout a performance possibly to become permanent fixtures in discussants' communication repertoires.

This study investigated the effects of immediate instructor feedback on group members' self-perceived anxiety, their satisfaction with their performance and with the immediate feedback system employed, and the quality of their discussions. Discussant anxiety can hinder decision-making communication.[2] If students find immediate feedback effective, their levels of self-perceived anxiety should not significantly exceed those of

individuals working without immediate performance appraisal.

For this investigation two indices of group effectiveness were selected, the satisfaction of group members with their interaction and the judged quality of their discussions. A person's willingness to contribute meaningfully to present and future discussions can be attributed, in part, to the satisfaction that results from the interaction.[3] The effectiveness of a group in pooling its analytic resources is reflected in an assessment of discussion quality.[4] The information and reinforcement which immediate feedback can provide would seem capable of promoting discussant satisfaction thereby elevating discussion quality.

Four treatment conditions were selected for this study: (1) Students working with immediate feedback during two discussions, (2) Students working with immediate feedback during their first discussion but without it during their second, (3) Students working without immediate feedback during their first discussion but with it during their second, and (4) Students working without immediate feedback during two discussions. Independent variables, then, were use or non-use of immediate feedback during each of two rounds of group discussion. Dependent variables were discussant perceived anxiety, group member satisfaction, and discussion quality.

For the groups proposed, levels of satisfaction and quality would seem to be highest in groups receiving immediate feedback during both discussions since students would receive immediate performance appraisal throughout their interactions. In

two conditions higher levels of satisfaction and quality would be expected for discussions in which immediate feedback was employed than for interactions in which it was not utilized. Satisfaction and quality should be lowest for the groups not receiving immediate feedback during either discussion.

Several dependent measures were utilized. Spielberger's STAI A-State scale indexed subjects' self-perceived anxiety before and during their participation in each discussion.[5] Students also responded to eight five-level satisfaction scales anchored by Strongly Agree and Strongly Disagree at the conclusion of each meeting.[6] Immediate feedback recipients responded to four items designed to evaluate the technique's effectiveness in promoting communication skills, confidence, and enjoyment. Finally, tape recordings of the discussions provided data for rater evaluations of discussion quality.

A separate analysis of variance for a two-factor completely randomized design was computed for each index related to the Spielberger, satisfaction, and quality scales. Frequencies were tabulated on the four immediate feedback evaluation items.

METHOD

Eighty students enrolled in basic speech and business and professional speech communication courses participated in two ad hoc decision-making groups. Students had received some theoretical orientation to fundamentals of discussion. Group composition did not vary over the duration of the experiment. Twenty subjects were assigned to each of the treatment conditions, and groups of five worked on the discussion tasks. One assignment required the

identification of the two most challenging problems facing freshmen, and the other involved the narrowing down of a list of items required for moon survival.[7] Subjects were granted up to twenty minutes to complete each task, and the ordering of the problems was counterbalanced.

Our Group Communication Effectiveness Trainer (hereafter called COMET-G) allowed immediate feedback by providing the video display of commentary from instructor to students.[8] An instructor's module includes a 3M Model-D 3000 video character generator, a flexible disc memory unit, disc controller, and preview and program monitors. Student modules consist of five television monitors built into a round conference table. When students are seated around the table, each can see only their monitor (see Figure 1). Table space is available for references and writing materials.

Insert Figure 1 About Here

Subjects not to receive immediate feedback assumed seats at monitorless round tables. Before tasks were presented, all participants completed Spielberger scales. Then COMET-G users were provided with brief explanations of the system. A comment like, "Hi y'all," appeared on the monitors to indicate how their instructors' comments would look.[9] After task instructions were discussed, a tape recorder was turned on, and subjects were told that their instructors might be interested in listening to the tape at a later time. Then, the students' instructors either assumed a position behind a oneway mirror at their module or left the classroom depending on the particular treatment.

Instructors using COMET-G typed spontaneous comments onto

their preview monitors and transmitted them to the discussants. Group members received at least one substantive comment (e.g. "Be more active," "Time for an internal summary," "What do you think?") and at least one positive reinforcer (e.g. "Good point," "That's better," "Well done.").

Regardless of the experimental condition, once subjects achieved a consensus decision the tape recorder was turned off and the students were asked to recall how they felt during the discussion as they completed another Spielberger index. All participants then responded to the satisfaction items, and COMET-G users evaluated the system. Similar procedures were followed for the second task.

The tape recordings of the discussions provided data for rater evaluations of discussion quality. Two instructors experienced in judging group discussions analyzed representative segments of the interactions utilizing a scale developed by Gouran, Brown, and Henry.[10] The raters did know which of the randomly ordered recordings represented groups receiving immediate performance appraisal.

RESULTS

The analyses of variance involving subjects' self-perceived anxiety indicated significant differences neither between groups nor within groups. In other words, subjects receiving immediate feedback were no more anxious before or during their interactions than were students who did not receive immediate feedback. Further, there were no significant differences in the anxiety levels of a particular group at any of the four times measured.

The internal reliability of the group member satisfaction scale was demonstrated by the .80 values of the Guttman Split-Half and the Spearman-Brown Equal Length Coefficients. A factor analysis was then performed on the items to determine any indices which could be composed of intercorrelated items.[11] Principal axis with iteration was the initial factoring method used. The orthogonal rotation method proved superior to the oblique method for achieving simple structure. Factor components had loadings of at least .50 on the primary factor.

Two factors accounted for 83.9% of the common variance. Factor I, Satisfaction, accounted for 55.5% of the common variance and 66% of the explained variance. These items evaluated students' perceptions of their discussion success. Factor II, Self-Fulfillment, accounted for 28.4% of the common variance and 44% of the explained variance. Subjects' enjoyment of the discussions and their interest in getting performance feedback were measured by this factor. The results of this factor analysis are presented in Table 1.

Insert Table 1 About Here

Factor scores were constructed from the complete factor loading matrix and were used in the analyses of variance involving the means of the experimental conditions on the two satisfaction factors.[12] Group means and standard deviations employed in computing the ANOVAs appear in Table 2.

Insert Table 2 About Here

According to the ANOVAs, significant main effect differences were

discovered on Factor I, Satisfaction, after the first discussion task ($F = 13.88$, $df = 1/76$, $p < .001$). Subjects who received immediate feedback ($\bar{X} = 1.30$) were more satisfied than their counterparts who did not receive immediate performance appraisal ($\bar{X} = .01$).

After the second discussion, analysis of the satisfaction factors revealed significant main effect differences on both Satisfaction and Self-Fulfillment. On Satisfaction ($F = 4.03$, $df = 1/76$, $p < .05$) subjects using COMET-G ($\bar{X} = .83$) scored higher than subjects working without immediate feedback ($\bar{X} = .28$). Two significant differences were evident on the Self-Fulfillment factor ($F = 11.98$, $df = 1/76$, $p < .001$ and $F = 5.66$, $df = 1/76$, $p < .02$). Groups in which COMET-G was used scored higher ($\bar{X} = 1.03$) on this factor than did those in which it was not utilized ($\bar{X} = -.04$). Also, individuals working under conditions of immediate feedback during both discussions or during the first but not the second ($\bar{X} = .83$) felt higher levels of Self-Fulfillment than those who received immediate performance appraisal only during the second discussion or in neither meeting ($\bar{X} = .16$). Apparently subjects who received immediate feedback during their first discussion felt high levels of Self-Fulfillment at the conclusion of their second interaction either because they benefitted from further immediate feedback or because they transferred insight developed with COMET-G to their unaided second tasks.

Sixty students had the opportunity to receive immediate feedback in this study, and since twenty received it twice there were eighty responses to the items evaluating the effectiveness of

immediate feedback. Results indicated that 76% of the subjects Strongly Agreed and 19% agreed that they enjoyed using COMET-G. All respondents indicated that they had been aware of the immediate feedback messages. All but three of the eighty respondents affirmed that the feedback had been useful to them. In addition, 87.5% of the responses indicated that COMET-G could help people "Quite a Bit" in developing group discussion skills and the remainder agreed that immediate performance appraisal could help "Some."

Individuals using COMET-G were asked to write their reactions to receiving immediate feedback. Generally, students believed that the technique built confidence, reduced anxiety and tension, and helped them to get involved in the discussions. Further, they appreciated their instructor's participation concurrent with their communication interaction.

Significant differences were also discovered in the discussion quality analysis. With percentage of agreement serving as an index, the .92 value of interrater reliability indicated that the judges' evaluations of the discussions were sufficiently consistent to warrant the planned analyses of variance. Given the relatively small number of quality ratings it was decided to combine evaluations across both discussions.[13] The ensuing ANOVA revealed a significant interaction effect ($F = 4.82$, $df = 1/52$, $p < .03$). A Scheffé post hoc test was used to analyze the simple effects. Groups working with COMET-G twice ($\bar{X} = 44.64$), during the first round but not the second ($\bar{X} = 40.36$), or during the first round but not the second ($\bar{X} = 39.93$) were judged to

have participated in interactions of higher quality than groups functioning without COMET-G during either discussion ($\bar{X}$ = 24.57).

CONCLUSION

Our findings demonstrated that receivers of immediate video feedback were no more anxious before or during discussions, were more satisfied with their performances, and participated in discussions of higher quality than individuals who did not receive immediate feedback. In addition to its value in group discussion instruction, immediate feedback has the potential to be a valuable learning resource in other situations where the transmission of instructions to students is beneficial, including public speaking, leadership training, interpersonal bargaining, and interviewing.

FOOTNOTES

[1]See, for example, Harold J. Leavitt and Ronald A. H. Mueller, "Some Effects of Feedback on Communication," Human Relations, 4 (1951), 401-410.

[2]See, for instance, Kunapuli V. Rao and Roger W. Russell, "Effects of Stress on Goal Setting Behavior," Journal of Abnormal and Social Psychology, 61 (1960), 380-388.

[3]Murray Horwitz, "The Recall of Interrupted Group Tasks," Human Relations, 7 (1954), 3-38; Harry P. Shelley, "Levels of Aspiration Phenomena in Small Groups," Journal of Social Psychology' 40 (1959), 149-164; Barry E. Collins and Harold Guetzkow, A Social Psychology of Group Processes for Decision-Making (New York: Wiley, 1964), pp. 188-204; Alvin Zander and Theodore Newcomb, "Group Levels of Aspiration in United Fund Campaigns," Journal of Personality and Social Psychology, 6 (1967), 157-162; William E. Jurma, "Leadership Structuring Style, Task Ambiguity, and Group Member Satisfaction," Small Group Behavior, 9 (1978), 124-134; William E. Jurma, "Effects of Leader Structuring Style and Task-Orientation Characteristics of Group Members, Communication Monographs, 46 (1979), 282-295.

[4]For a discussion of research related to discussion quality see Dennis S. Gouran, Candace Brown, and David R. Henry, "Behavioral Correlates of Perceptions of Quality in Decision-Making Discussions," Communication Monographs, 45 (1978), 51-63.

[5]Subjects filled out Spielberger STAI A-State scales before and after each of their discussions. Before meetings, participants were asked to evaluate how they felt going into the task, and after discussions they were asked to recall how they felt during the interaction as the basis for their ratings. For general information on Spielberger's measure see Charles D. Spielberger, Robert L. Gorsuch, and R. E. Lushene, STAI Manuel for the State-Trait Anxiety Inventory (Palo Alto, California: Consulting Psychologists Press, 1970) and Charles D. Spielberger, Anxiety: Current Trends in Theory and Research (New York: Academic Press, 1972).

[6]Some satisfaction items were developed by the researchers. Others were similar to those used by Jurma. See Jurma, "Leadership Structuring Style, Task Ambiguity, and Group Member Satisfaction."

[7]For a detailed discussion of the NASA moon survival task see Jay Hall and W. H. Watson, "The Effects of Normative Intervention in Group Decision-Making Performance," Human Relations, 23 (1970), 299-317.

[8]The COMET-G system was developed by professors Ralph Behnke and Mike Beatty. It was custom built by Teaching systems, Inc. and Texas Video at a cost of approximately $30,000 in 1977. Other institutions could reduce this cost substantially by opting not to purchase features such as the flexible disc memory unit. In an earlier article Behnke and Beatty discussed

techniques for providing immediate feedback to public speakers. A television typewriter was used to transmit instructor messages to a monitor built into the speaker's podium. See Ralph R. Behnke and Michael Beatty, "Critiquing Speaker Behavior Through Immediate Video Display," Communication Education, 26 (1977), 345-348. While immediate video feedback was provided for student subjects in the present study, alternative feedback systems may be suitable. Perhaps flashcards or audio signals received by participants through headphones could effectively transmit feedback.

[9]So that the situation would be as natural as possible the students' instructors were trained to use COMET-G. These instructors provided the immediate feedback to their own students during the discussions. So that findings could not be attributed to instructors' personality variables no teacher provided immediate feedback to more than one group in any condition. Five instructors used COMET-G in this study.

[10]Gouran, Brown, and Henry. Given the large number (28) of discussions to be evaluated we decided to have the judges rate five minute segments from each interaction. Four discussion tapes were available for each condition from the first round of interactions. The first five minutes of one discussion, middle five minute segments of two discussions, and the final five minutes of one discussion were critiqued in each condition. Judges evaluated these sixteen segments after they had been arranged in random order. Due to some mechanical difficulties

only three recorded discussions were available for each condition of the second round of discussions. Only one five minute segment represented the middle portion of the discussions in each condition. Otherwise, the rating procedure was identical to that incorporated for the first round.

[11]Since subjects filled out the satisfaction scales after both discussions, the factor analysis was based on 160 completed scales.

[12]For a discussion of factor scores see Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences (New York: McGraw-Hill, 1975), pp. 488-489.

[13]This combination allowed the ANOVA to analyze fourteen rater evaluations in each condition.

TABLE 1

FACTOR STRUCTURE AND LOADINGS OF SATISFACTION ITEMS

Factor	Eigenvalue	Percent of Variance	Cumulative Percent
I	2.10	55.5	55.5
II	1.07	28.4	83.9

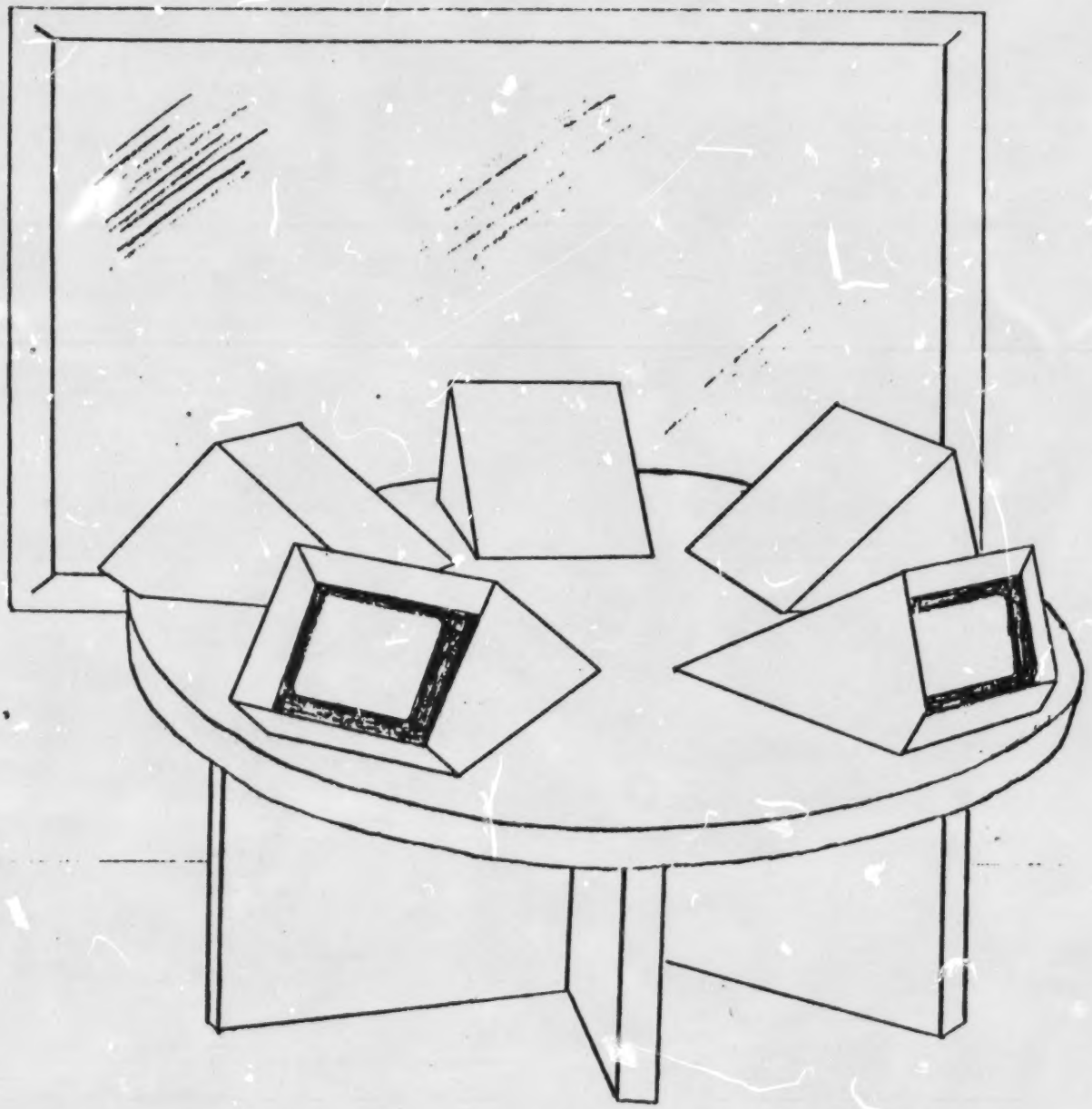
Item	Factor I Satisfaction	Factor II Self - Fulfillment	h^2
SATISFACTION ITEMS			
I don't think I did well.	-.60	-.03	.36
I think I could do better.	-.54	.38	.44
I was satisfied with my performance.	.58	.16	.43
I did my best on this project.	.54	.37	.48
SELF-FULFILLMENT ITEMS			
I would like to know more about how well I did.	-.03	.69	.48
I enjoyed making this presentation.	.29	.68	.62
OTHER ITEMS			
I have a pretty good idea of how well I did on this presentation.	.33	.11	.39
I know what I have to do to improve for my next performance.	-.06	.10	.56

TABLE 2

CONDITION MEANS AND STANDARD DEVIATIONS OF SATISFACTION AND SELF-FULFILLMENT ITEMS (BASED ON FACTOR SCORES)

Group	Satisfaction		Self-Fulfillment	
	$\bar{X}$	S. D.	$\bar{X}$	S. D.
Following the First Discussion				
Comet-Comet	.13	.70	.74	.58
Comet-No Comet	.21	.71	.56	1.12
No Comet-Comet	.09	1.06	-.02	.84
No Comet-No Comet	-.08	1.04	-.07	.79
Following the Second Discussion				
Comet-Comet	.42	.82	.59	.61
Comet-No Comet	.31	.86	.26	.83
No Comet-Comet	.61	.65	.46	.51
No Comet-No Comet	-.02	.96	-.30	.90

FIGURE 1



COMET-G'S STUDENT MODULES

Instructors use the character generator located behind the oneway mirror to transmit immediate video feedback,